

Amendments

Please amend the claims as follows:

Claim 1. (original) In a wireless broadband system comprising a base transmitting to a plurality of subscribers, means for achieving an interactive bi-directional system comprising transmitter means in the subscriber system for transmitting signals which are orthogonal to the signals transmitted from other users arriving at the base station.

Claim 2. (original) The means for achieving an interactive system according to claim 1, wherein the base transmission uses DVB-T or OFDM wireless communication channels, or another downlink scheme.

Claim 3. (original) The means for achieving an interactive system according to claim 2, wherein the transmission from the base include guard intervals, and wherein the transmitter means in the subscriber system include means for transmission synchronized with the guard intervals on the return channel to achieve orthogonality with the signals in the uplink.

Claim 4. (original) The means for achieving an interactive system according to claim 1, wherein the transmitter means in the subscriber system include means for transmitting in a TDD or FDD mode, using a dedicated channel which is set apart from the broadcast channels.

Claim 5. (original) The means for achieving an interactive system according to claim 4, wherein the transmitter means in the subscriber system include means for transmitting MAC messages without interference or for embedding control messages with the MPEG TS of the broadcast channel.

Claim 6. (original) The means for achieving an interactive system according to claim 1, wherein the transmitter means in the subscriber system include means for transmitting in a FDD mode, using a dedicated channel set apart from existing broadcast channels, for the sole purpose

of the return channel, to achieve orthogonality between the subscriber's signals arriving at the base station.

Claim 7. (original) The means for achieving an interactive system according to claim 6, wherein the transmitter means in the subscriber system include means for transmitting MAC messages which are embedded in the MPEG TS.

Claim 8. (original) The means for achieving an interactive system according to claim 1, wherein the transmitter means in the subscriber system include means for transmitting in in-band FDD or TDD mode, using one or more broadcast channels serving the return channel on FDD or TDD mode, to achieve orthogonality with the signals transmitted from the base station.

Claim 9. (original) The means for achieving an interactive system according to claim 8, wherein the physical layer in the transmitter means in the subscriber system include FDD means which provides a separate frequency assignment for the up stream and down stream channels.

Claim 10. (original) In a wireless broadband system comprising a base transmitting to a plurality of subscribers, a method for achieving an interactive bi-directional system comprising the steps of:

- a. using a subscriber transmitter with an upstream physical layer based on the use of a combination of Time Division Multiple Access and Orthogonal Frequency Division Multiple Access;

- b. dividing the upstream into a number of "time slots " as defined by the MAC layer;

- c. controlling, in the MAC layer, the assignment of subchannels and time slots by bandwidth on demand and Data Rate on demand.

Claim 11. (original) The method for achieving an interactive bi-directional system according to claim 10, wherein in step (b) each time slot is sized to the duration of one OFDM symbol.

Claim 12. (original) The method for achieving an interactive bi-directional system according to claim 10, wherein in step (b) each time slot is divided in the frequency domain in to groups of sub-carriers referred to as subchannels, that can arrive in groups or spread over the entire band.

Claim 13. The method for achieving an interactive bi-directional system according to claim 10, wherein a plurality of subscribers transmit simultaneously by using an OFDMA technique that provides data on OFDMA about the user, and wherein the data comprises a time of arrival, relative amplitude or power and the user's channel behavior including multipath.

Claim 14. (original) The method for achieving an interactive bi-directional system according to claim 10, wherein the time of arrival at the base for a plurality of subscribers units are synchronized using Automatic Synchronization Control (ASC) .

Claim 15. (original) The method for achieving an interactive bi-directional system according to claim 10, wherein a plurality of subscribers units are power controlled by using Automatic Power Control (APC).

Claim 16. (original) The method for achieving an interactive bi-directional system according to claim 10, wherein a plurality of subscribers units are allocated Sub-channels in a specified OFDM Symbol by the MAC layer.

Claims 17-22. (canceled)